

2019 Mosquito Season: MDAR/SRMCB Weekly Report

Epi Week 29 (July 14 – July 20) – Report #8 (7/26/2019)

This is the eighth Massachusetts mosquito report for the 2019 surveillance season.

This Week:

Epi Week 29 had an uptick in arbovirus activity, with our first 4 EEEv-positive pools of the season and one additional WNV+ pool (details on p. 3). Four EEEv+ pools at once may sound alarming, but note that back in 2014, we had the same thing pop up at this time of year. Also note that in 2012, the last time an aerial spray was done, we had already had 61 EEEv+ pools by Epi Week 29. So while the state is definitely paying close attention to the situation, a lot could change over the coming weeks. For the latest WNV and EEE risk maps from DPH, see www.mosquitoresults.com.

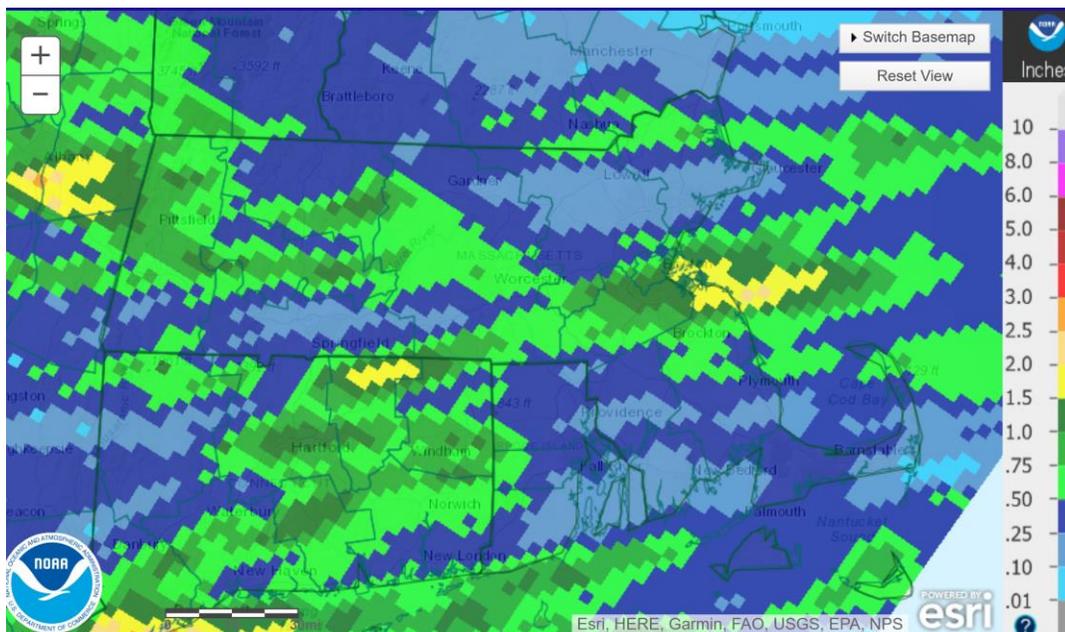
Cumulative Arbovirus-Positive Mosquito Pools Through Epi Week 29 (2015-2019):

2019	2018	2017	2016	2015
2/2381 WNV (.08%)	57/2422 WNV (2%)	24/1865 WNV (1.3%)	12/3045 WNV (.4%)	18/1737 WNV (1%)
4/2381 EEE (0.2%)	0/2422 EEE (0%)	0/1865 EEE (0%)	1/3045 EEE (.03%)	0/1737 EEE (0%)

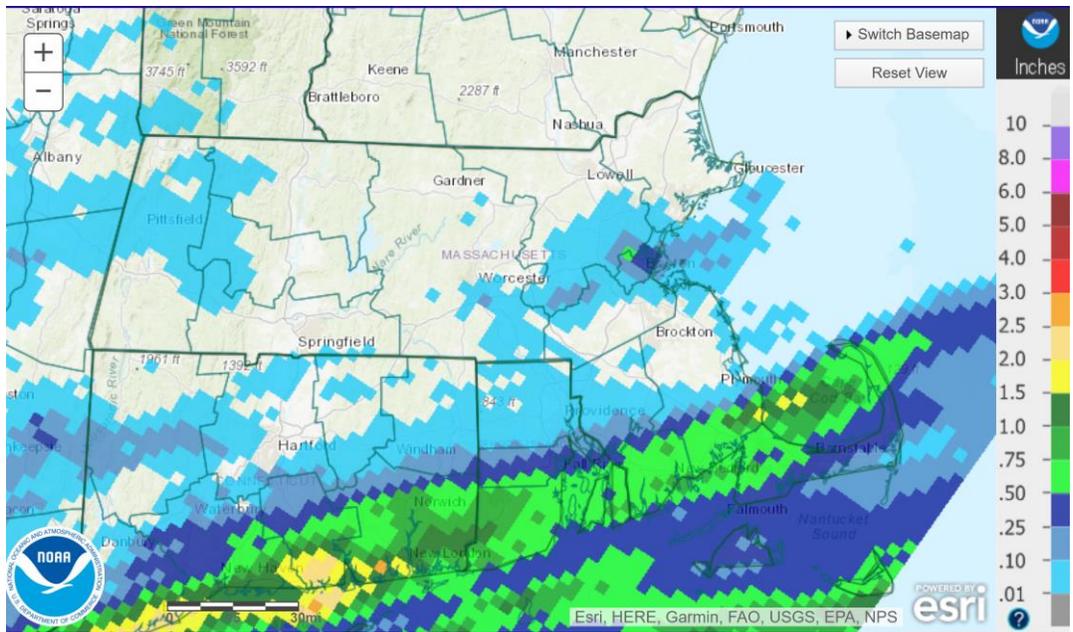
Mosquito pool submissions were up over Epi Week 28, as is typical for this time of year. Overall, *Coquillettidia perturbans* was once again the most common species collected, and made up the bulk of mosquitoes trapped this past week, with more than 54,000 specimens found in traps (last week's report incorrectly reported 20,000 *Cq. perturbans*, it was actually more than 70,000). As this species is a bridge vector for EEEv, these numbers are something to keep an eye on.

Weather:

A weather map was not available for Epi Week 29. In its place, here are two maps showing the bulk of the rain that moved through on July 18-19, showing a lot of variation in accumulations across the state on 7/18 (mostly under 1.5"), and additional rainfall across southern Bristol and Plymouth Counties and Cape Cod on 7/19:



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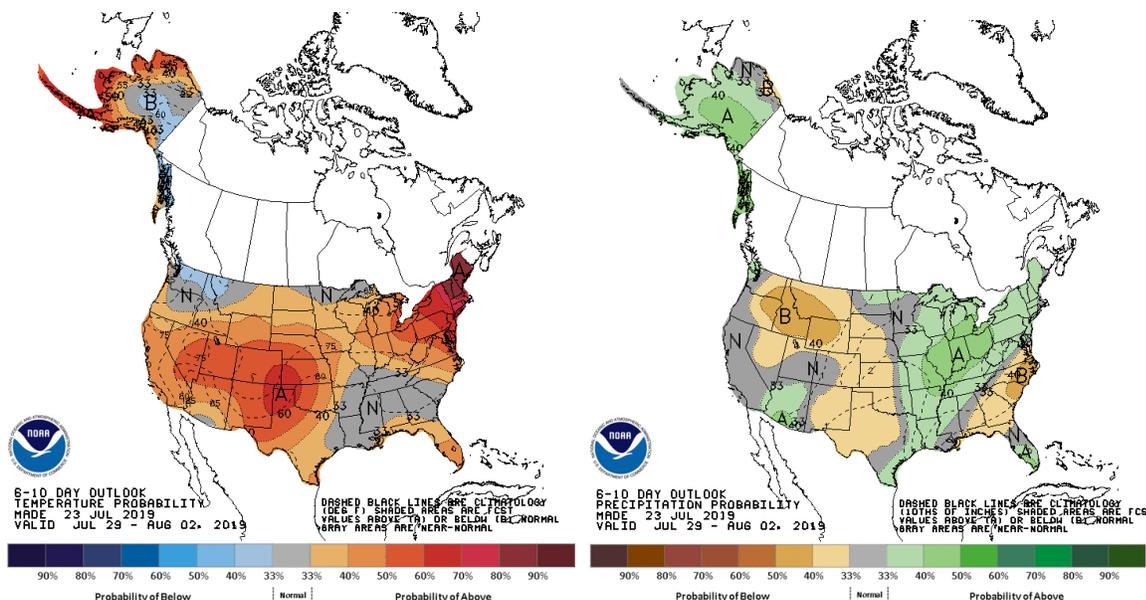
With the rain events of the past week, the entire state is now out of drought conditions.

Looking ahead, temperatures will be slightly to much above normal, but nothing like the extreme temperatures/humidity of last weekend. The end of Epi Week 30 will have mid to upper 80s, with low to mid 90s for highs early in Epi Week 31 and temperatures returning to near normal by mid-week. The next chance of showers should be mid/late Epi Week 31, when the weather pattern looks to switch to slightly wetter than normal. Keep in mind, however, that longer range precipitation outlooks can be significantly inaccurate, especially in the warmer months.

Outlook maps for Epi Week 31 (7/29/2019 – 8/2/2019), indicating above-average temperatures and average to above-average precipitation (average for Southeastern MA), are below:

Temperature

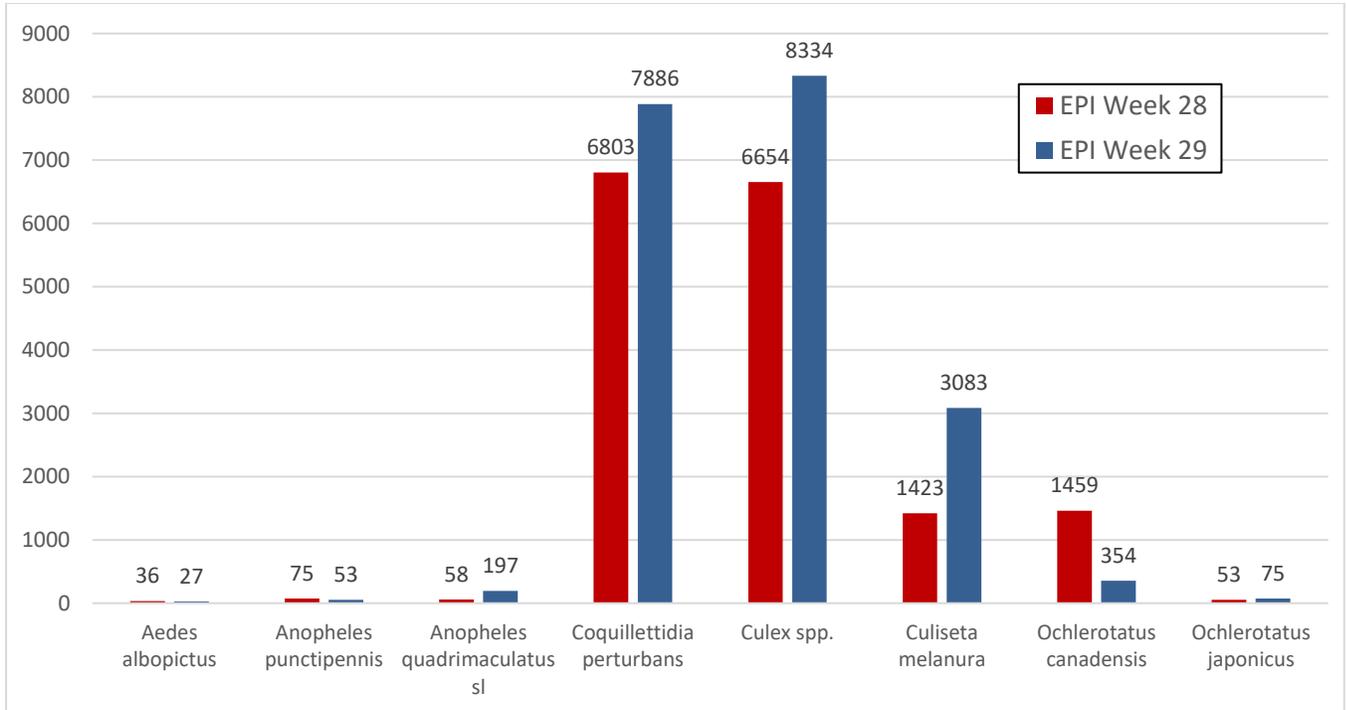
Precipitation



Questions/Comments? Contact: Jennifer Forman Orth, Environmental Biologist, Mass. Dept. of Agricultural Resources, jennifer.forman-orth@state.ma.us or 617-626-1735

Mosquito diversity for Epi Week 29:

All mosquito pools submitted to DPH are tested for both WNV and EEEv. Submissions for key species were up this past week, with *Culiseta melanura* numbers more than doubled. The most common mosquito submitted for testing was *Culex* spp. (including *Cx. salinarius*), followed by *Coquillettidia perturbans*.



Detailed West Nile Virus Update:

- Mosquito pools testing positive for WNV (Epi Week 29): 1 out of 527 pools tested (0.2%)
- Cumulative total of mosquito pools positive for WNV: 2 out of 2381 pools tested (0.1%)
- Minimum Infection Rate for WNV (Epi Week 29): .05 (estimated number of infected mosquitoes per 1000 tested)
- Human/Animal Cases of WNV:
 - Horses: 0
 - Humans: 0
- Cities/towns where mosquito pools testing positive for WNV have been found this week:

# Pools	County	City/Town	Collection Date	Mosquito Species
1	Berkshire	Pittsfield	7/18/2019	<i>Culex pipiens/restuans</i>

Detailed Eastern Equine Encephalitis Update:

- Mosquito pools testing positive for EEEv (Epi Week 29): 4 out of 527 pools tested (1%)
- Cumulative total of mosquito pools positive for EEEv: 4 out of 2381 pools tested (0.2%)
- Minimum Infection Rate for EEEv (Epi Week 29): 0.2
- Human/Animal Cases of EEEv:
 - Horses: 0
 - Humans: 0
- Cities/towns where mosquito pools testing positive for EEEv have been found this week:

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# Pools	County	City/Town	Collection Date	Mosquito Species
1	Bristol	Easton	7/15/2019	<i>Culiseta melanura</i>
1	Bristol	Freetown	7/15/2019	<i>Culiseta melanura</i>
1	Bristol	New Bedford	7/15/2019	<i>Culiseta melanura</i>
1	Bristol	Fairhaven	7/17/2019	<i>Culex pipiens/restuans</i>

DPH EEEv Long-term Trap Summary:

- Abundance of *Culiseta melanura* collected at long-term trap sites for Epi Week 29 was triple 2018 levels, and far above (more than 5 times) the 5- and 10-year averages.
- The predominant mosquito found at DPH long-term trap sites switched back to *Culiseta melanura*.

Local Updates:

- Berkshire County: *Cq. perturbans* and *Cs. melanura* levels declined this past week. *Culex* spp. became the main mosquito in development. *Cq. perturbans* have been more numerous than in 2018, with high numbers showing up in gravid traps at several locations. Larval treatments, targeted adulticiding, and catch basin treatments are currently underway. *Cq. perturbans* in the vicinity of *Cs. melanura* habitat are being targeted.
- Bristol County: Four EEEv+ mosquito pools were found in the county this past week (see table on p.3). We continue to see high numbers of *Cs. melanura* in many traps across the county. Gravid traps continue to collect higher than normal numbers of *Culex pipiens/restuans*. Notably, we are seeing a 50% decrease in our *Cq. perturbans* population, a pattern that has continued all season. This year’s population of *Cq. perturbans* is down to roughly half of what we saw at this time last year and down half from the 10-year average. *Cs. melanura* levels continue to be about 2x higher than the 10-year average and 3x higher than the 5-year average. *Oc. canadensis* is 2x higher than last year, while *Culex* spp. dropped by about half. Areas around *Cs. melanura* habitat and EEEv+ trap sites have been treated with ULV adulticide.
- Cape Cod: Freshwater mosquito species levels increased this past week, above 2018 levels and almost triple the 10-year average. The predominant species was once again *Cq. perturbans*, and the county has seen a noted increase in this species at all collection sites so far in 2019. Levels of *Culex* spp. in gravid traps decreased, falling below both 2018 levels as well as the 10-year average. Crews have been treating catch basins and fresh and salt water habitats with larvicides and pupicides as needed.
- Central MA: *Cs. melanura* and *Culex* spp. experienced significant increases this week. *Cq. perturbans* was once again the most abundant mosquito species, followed by *Culex* spp. The peak of *Coquillettidia perturbans* emergence may have already been observed. All target species have all been collected in higher numbers this year compared to 2018 except for *Culex* spp., with *Cs. melanura* levels more than 6 times what they were last year at this time.
- Dukes County Mosquito Surveillance Program: No report was provided. One pool of *Culex pipiens/restuans* was submitted and did not test positive for arbovirus.
- East Middlesex: *Cq. perturbans* numbers dropped dramatically, and summer floodwater species have not returned to normal levels. Due to this, total trap collections were down from Epi Week 28.
- Norfolk County: Total trap catch increased by more than 50% this week, reaching our highest numbers of mosquitoes and submissions by far. *Cq. perturbans* numbers doubled, reaching what is likely the peak for the season, and *Cs. melanura* numbers were triple compared to Epi Week 28. Total gravid

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trap collections increased from last week, driven by a three-fold increase in *Cx. pipiens/restuans* numbers. Saltmarsh and brackish species catch decreased from last week, and there was an increase in *Ae. vexans* at our floodplain sites. ULV adulticiding and catch basin larviciding efforts continued.

- Northeast MA Mosquito & Wetland District: Mosquito collections for Epi Week 29 increased by 57% over Epi Week 28, due to increased abundance of *Cq. perturbans*. Collections were also up 57% compared to this time in 2018. *Cq. perturbans* remained the predominant species, with levels now significantly higher than in 2018. *Cs. melanura* levels were 250% higher when compared to 2018 (a reversal from Epi Week 28), while *Cx. pipiens* levels were 68% lower. *Cx. salinarius* is still up over 800% compared to 2018, and *Ae. vexans* levels were also higher. Catch basin larviciding is ongoing, as is freshwater and floodwater larviciding in impacted municipalities. A salt marsh aerial larvicide treatment is planned for the first full week of August.
- Pioneer Valley: There were 53 mosquito pools submitted for testing in Franklin, Hampshire, and Hampden Counties, with the most commonly collected species now *Culex pipiens/restuans*, followed by *Cs. melanura*. A variety of other *Aedes* spp., *Anopheles* spp. and *Ochlerotatus* spp. were also collected, but in much smaller numbers.
- Plymouth County: Light trap collections were slightly above normal (including *Cs. melanura*, *Oc. canadensis* and *Cq. perturbans*), while gravid trap collections were far below normal. The predominant species was *Cq. perturbans*, as expected. Crews have been performing larval site inspections and treating catch basins.
- Suffolk County: Most light traps collections were low. Populations of salt marsh mosquitoes (*Oc. sollicitans*) were high at one of Boston's salt marshes. Crews are almost finished completing larvicide applications to Boston's catch basins.

Updates from other states:

- Connecticut: There were more than 25,000 mosquitoes tested during Epi Week 27, for a total of 106,256 tested so far this season. Four new JCV+ mosquito pools were found, bringing the total for the season to 13 JCV+ mosquito pools. No other arbovirus has been found.
- New Hampshire: With 649 mosquito pools tested so far this season, no arbovirus has been found.
- New Jersey: NJ reported 3 additional EEEv+ mosquito pools, for a total of 4 EEEv+ pools with over 67,000 mosquitoes tested. The state also reported an additional 5 WNV+ mosquito pools, bringing the total for the season to 9 mosquito pools and one human case of WNV, with more than 68,000 mosquitoes tested. No other arbovirus was found, leaving totals at 3 JCV+ pools and 1 LXV+ pool.
- New York: NY reported 7 new WNV+ mosquito pools and its first 2 EEEv+ mosquito pools of the season, for a total of 13 WNV+ mosquito pools and 2 EEEv+ pools so far this season.
- Pennsylvania: PA reported 6 new WNV+ mosquito pool, for a total of 13 through Epi Week 29.
- Rhode Island: As of Epi Week 29, no arbovirus has been found, with 6657 mosquitoes tested.
- Vermont: VT reported no arbovirus, with 842 mosquito pools tested.
- Other arbovirus activity of note: Note that one of the 4 EEEv+ pools from NJ was in a pool of *Aedes albopictus*. South Carolina is reporting one equine case of EEEv. Florida is now reporting 79 EEEv+ sentinel birds and 25 EEEv+ horses, up from 72 and 24 last week, respectively. The equine and bird cases are below Florida's 10-year average for July.

Weather data provided by Trevor Battle; GIS mapping provided by Dake Henderson.

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